

## **REMARKS**

The present invention is a communication system for implementing personalizable and customizable features while avoiding feature interactions and a system for implementing features while avoiding feature interactions. A communication system for implementing personalizable and customizable features while avoiding feature interactions in accordance with an embodiment of the invention includes a tuple space (3); and a plurality of user agents (10) representing the features, the user agents communicating with each other via assertions posted to the tuple space in order to implement the features, each of the features being structured as a set of deontic task trees having a parent node with an obligated inherent action in a plurality of child nodes with respective node interactions performed according to a predetermined sequence for implementation of each feature, the results of which are reported back to the parent node, the parent node having deontic modalities on the behavior of the child nodes such that successful implementation of the features results from successful occurrence of the inherent action and composed success of the node actions of the children nodes. In the Substitute Specification, see paragraphs [0046] - [0054] for an explanation of deontic logic and see paragraphs [0055] - [0069] for an explanation of the configuration of nodes into a tree.

The Examiner has requested information pursuant to 37 C.F.R. §1.105. The Applicant responds thereto as follows.

First, the references used in drafting the specification are those cited therein which were considered to be prior art material to the claimed invention.

As indicated by the Examiner on page 3 of the Office Action, the Applicant is requested to submit an Information Disclosure Statement to cite additional prior art. The “Coordinating with Obligations” publication authored by Barbuceanu, Mankovski and Gray has already been considered by the Examiner on the record in an Information Disclosure Statement by Applicant on December 28, 2006. Therefore, the second reference identified on page 4 (“Coordinating with Obligations”) of the Office Action is already of record.

The Crespo et al. publication entitled “Feature Execution Trees and Interactions” is submitted herewith in the Information Disclosure Statement along with additional references for the Examiner’s consideration. The Crespo et al. publication is considered to not be relevant to the claimed subject matter for the reason that Feature Interaction Trees (FETs) are disclosed for Crespo et al. for the detection of feature interactions. As may be seen from Figure 3 of Crespo, et al. the FETs do not disclose a deontic or other form of mode or logic. Instead the trees execute downwardly first left to right until they succeed or fail.

In contradistinction, independent claims 1 and 30 recite “respective node actions performed according to a predetermined sequence for implementation of each feature, the results of which are reported back to said parent node, said parent node placing deontic modalities on the behavior on said child nodes such that successful implementation of each feature results from successful occurrence of said inherent action and composed success of the node actions of said children nodes.” Crespo et al differs fundamentally in not disclosing parent nodes placing deontic modalities on the behavior of child nodes, the results of child node operation are not reported back to the parent nodes and the trees do not involve the composed

success of child nodes to determine whether or not a feature has been successfully implemented. Therefore, while Crespo et al disclose FETs, the disclosure therein is submitted to render unpatentable the claimed invention.

Additional prior art cited in the concurrently filed Information Disclosure Statement is for consideration of the Examiner but is submitted to not disclose the aforementioned claimed features.

The Examiner is thanked for permitting submission of the foregoing prior art pursuant to 37 C.F.R. §1.97 without additional fee.

Moreover, it is noted on the top of page 4 of the Office Action that the Examiner set a shortened statutory period of response of two months for responding to the aforementioned requirement. However, the Examiner is directed to MPEP §704.13 which clearly states that when a requirement is made, such as the Examiner has made for additional information pursuant to 37 C.F.R. §1.105, the longer shortened statutory period for the Office Action governs the time for response.

The specification stands objected to pertaining to the insertion of new matter. The specification has been amended to refer to the original foreign application with parenthetical reference to the corresponding U.S. patent being included which is believed to not result in new matter since the parenthetical expressions are merely to show the U.S. counterpart patent of the referenced application. However, if the Examiner objects the Applicants will cancel the reference to the U.S. counterpart patent.

Claims 1-10 and 12-57 stand rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Specifically, the

Examiner has considered the claims to be indefinite for the recitations in claims 1 and 30 of “said parent node placing deontic modalities on the behavior of said child nodes such that successful implementation of said (SIC) [claims 1 and 30 refer to successful implantation of each feature results from occurrence of said inherent action and composed success of nodes actions of said child nodes]”. As the Examiner is aware the claims are judged by the understanding of a person of ordinary skill in the art. The Examiner is referred to paragraphs [0047], [0050] and [0053] of the Substitute Specification including tables 2 and 3. Upon reading of this portion of the disclosure it is clear that claimed successful implementation of each feature results from occurrence of inherent action and composed success of the node action of the child nodes as further expanded upon by paragraphs [0050] and [0053] and tables 2 and 3. It is submitted that a person of ordinary skill in the art understands that successful implementation of each feature results from success of the nodes own action and actions of its children as set forth in the independent claims .

Claims 10 and 13 have been cancelled which moots the stated grounds of rejection with respect to those claims.

Claims 1-10 and 12-57 stand rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. These grounds of rejection are traversed for the following reasons.

In the first place, independent claim 1 recites a communication system which has long been considered to be a statutory subject matter. A communication system is a “manufacture” in accordance with 35 U.S.C. §101 as recited in the claims as

comprising a tuple space which is a physical memory space as described below and a plurality of user agents.

It has been previously decided that a communication system is statutory subject matter which is considered to be an article of manufacture under 35 U.S.C.

§101. See Ex Parte Jonathan Mass Appeal No. 95-2552 where the Board held:

“Appellant argues that the communication systems of claims 1 and 15 fall within the class of a “manufacture” under §101. We agree. A manufacture is defined to include: “Every article devised by man except machinery upon the one side, and compositions of matter and designs on the other.” 1 Chisum, Patents & 1.02[3] (1994), quoting W. Robinson, The Law of Patents for Useful Inventions 270 (1890). The communication systems are comprised of physical man-made articles...The communications system has utility in the technological field of telecommunications and thus is subject matter consistent with the Constitutional purpose to promote the progress of “useful arts,” Article 1, Section 8. Accordingly, the systems of claims 1 and 15 are considered statutory subject matter under §101 within the class of a “manufacture.”

Additionally, it is well understood by persons of ordinary skill in the art that the claimed tuple space is a memory. For example the Examiner is referred to U.S. Patent 5,963,947 in column 2, lines 40 et seq. which defines a tuple space as “a globally shared, associatively address memory space that is organized as a grouping of tuples.” Moreover, the aforementioned Crespo et al publication also defines tuple space on page 3 column 2 in the last paragraph before section 2.3 as “[t]he tuple space is an associatively addressed memory, allowing a fast selection of the tuples that satisfy a template” and finally it is a tuple space as defined in Wikipedia as “a tuple space is an implementation of the associative memory paradigm for parallel/distributing computing...a repository of tuples that can be accessed concurrently, consider that there are a group of processors that produce pieces of

data and a group of processors that use the data...post their data as tuples in the space and the consumer is then retrieved data from the space that match a certain pattern". It is clear that persons of ordinary skill in the art consider the claimed tuple space to be a memory which is not a software element. Therefore, the Examiner's principal contention that the claims recite merely software is fundamentally flawed. The claims recite statutory subject matter comprised of a system including a memory recited as a tuple space.

Moreover, the Examiner cannot cite any case law which supports the proposition that the system of claims 30-57 or the communication system of claims 1-9 and 11-29 (as for example considered by the Board above to be statutory subject matter as an article of manufacture) is non-statutory subject matter simply because at least one of the elements may be implemented in software. The Examiner can not point to anything in the independent claims which limits the elements thereof to software.

Even assuming arguendo that the claimed plurality of user agents are implementable in software, the claims recite an associative relationship as part of a system or communication system involving the tuple space and the plurality of user agents which interact as a set of deontic task trees...each feature results from successful occurrence of said inherent action and composed success of the node actions of said children nodes". Therefore the claimed system or communication system comprised of a tuple space which is clearly a non software memory element which is statutory subject in association with a plurality of user agents which are not limited to a software program but instead define a functional entity which may be

implemented in software or otherwise. The claims are not non-statutory simple because one or more of the elements may be implemented in software.

If the Examiner persists in the stated grounds of rejection of non-statutory subject matter, it is requested he specifically answer each of the above basis set forth by the Applicant why the claims do define statutory subject matter including citation of any authority which the Examiner has holding that the claiming of a system or communication system which in part may be implemented in software and includes a memory renders the system non-statutory subject matter.

Claims 1 and 30 stand rejected under 35 U.S.C. §102 as being anticipated by admitted prior art with the Examiner predicated the rejections of claims 1 and 30 respectively on claims 10 and 39 being interpreted as a Jepson claim. These grounds of rejection are traversed for the following reasons.

Claims 10 and 39 have been cancelled which moots the grounds of rejection. Moreover, to the extent that claims 10 and 39 are being interpreted as an admission of prior art, such interpretation is not the intention of the Applicant in drafting claims 10 and 39. The construction the Examiner has placed on those claims as admitted prior art is not the intention of the Applicant and that construction of the claims as stated by the Examiner fails to particularly point and distinctly claim the subject which the Applicant regards as the invention. Therefore, the Examiner's construction of the claims as an admission of prior art is erroneous with the Examiner's construction thereof rendering the claims to be violation of the second paragraph of 35 U.S.C. §112 since the Applicant did not regard the claimed subject matter of claims 10 and 39 to be an admission of prior art.

Claims 1-9 and 12-57 stand rejected under 35 U.S.C. §103 as being obvious over the Buhr et al. publication ("Feature-Interaction Visualization and Resolution in an Agent Environment in view of the Coordinating with Obligations Publication of Mihai, et al."). These grounds of rejection are traversed for the following reasons.

Independent claims 1 and 30 respectively recite a communication system for implementing personalizable and customizable features while avoiding feature interactions and a system for implementing features while avoiding feature interactions including a plurality of user agents representing said features...each of said features being structured as a set of deontic task trees having a parent node with an obligated inherent action and a plurality of child nodes with respective node interactions performed according to a predetermined sequence for implementation of each feature, the results of which are reported back to said parent node, said parent node placing deontic modalities on the behavior of said child nodes such that successful implementation of each feature results from successful occurrence of said inherent action and composed success of the node actions of said children nodes. The Examiner correctly admits that Buhr et al. do not teach deontic task trees.

Then the Examiner asserts as follows:

"However, Mihai teaches deontic tree (See e.g. Mihai's Fig. 4. See also pg. 9-11 section 6). Mihai also teaches that the parent node placing deontic modalities on the behavior of at least one of said child (See e.g. Mihai's section 6, especially on propagating constraint onto child nodes). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modified Buhr's with Mihai. One would have been motivated to do so because deontic tree is a tree structure of duties or obligations (As argued by the applicant on pg. 29 of the remark), which UCM lacks of. UCM only only provide visual representation of structures. Hence, by replacing CUM with deontic tree, one can incorporate duties or obligations into the structure representation."



The Examiner's assertion regarding Mihai, et al. is erroneous. In the first place Buhr et al. and Mihai, et al. do not address run time resolution of features which is recited in each of the claims by "the results of which are reported back... composed success of the node actions of said children nodes".

Paragraphs [0017] - [0020] of the specification discuss Mihai et al. using OPI for preplanning of features but not run time operation. These paragraphs are reproduced as follows:

[0017] There are several handicaps in the approach of Barbuceanu et al that must be remedied for practical use. For example, the use of truth maintenance for the propagation of received constraints in OPI is a very complex and time-consuming task. It is impractical to use truth maintenance for the run-time resolution of feature conflicts. Chief among the difficulties in using OPI is the fact that a truth maintenance system, on receiving a new constraint, is capable of identifying as forbidden actions that have already taken place. How such a system would react to 'un-ring a bell', for example, or to withdrawing an alerting signal sent to a user in run-time resolution, is not clear. Indeed, a close reading of the prior art publication of Barbuceanu et al shows that OPI is intended for pre-planning of features and not for run-time operation.

[0018] Since OPI is intended for the pre-planning or off-line definition of features, it has no need to specify observers of real world states. It does not have to address the problem of responding to changes in the environment.

[0019] The original OPI structure has difficulty with the composition of features (i.e. the task of adding a new feature to an already existing set). The original OPI assumes consistency of a given set of features based on the values of the deontic modalities that govern each node. What this means is that the tree stands on its own and does not communicate with any other set of features. It does not have a way of coordinating its behavior with other sets of features. There is no insight in the published OPI concepts about where a new or additional feature should be added to an existing tree.

[0020] The original OPI, as discussed above, is not concerned with run-time operation. It is primarily a planning tool. For run-time operation, the trees must be able to respond to events (assertions and state changes in the world) so as to adapt feature behavior. A

feature therefore must have the ability to recognize that the intent of what it is trying to do may not be possible and in response gracefully modify its behavior.

Mihai et al. pertain to a prototyping system for preplanning or off line definition of features which is a characteristic also shared by Buhr et al. Neither Buhr et al., as recognized by the Examiner, nor Mihai, provide the aforementioned subject matter of claims 1 and 30. The Examiner's characterization of the parent node placing deontic modalities on the behavioral said child nodes is erroneous. Mihai's use of deontic constraints is for determining actions in the tree which will be performed or alternatively to determine actions which are prohibited and therefore must not be performed. This teaching does not address nor suggest the limitation set forth above in claims 1 and 30 of reporting of results back to the parent nodes and moreover does not suggest "said parent node placing deontic modalities of the behavior of said child nodes such that successful implementation of each feature results from the successful occurrence of said inherent action and composed success of the node actions of said children nodes".

It is submitted, that contrary to the Examiner's interpretation of Mihai et al., Mihai, et al. do not teach the parent node placing deontic modalities on the behavior of said child nodes but merely teach the use as planning tool.

If the Examiner persist in the stated grounds of rejection it is requested that he clarify on the record his basis for the conclusion that Mihai, et al. cure the deficiencies of Buhr et al. pertaining to deontic tree utilization. While Mihai, et al. certainly do discuss deontic trees in section 6 including deontic propagation in a network as illustrated in Figure 4, such teaching does not meet the claims for the reasons set forth above and specifically that Mihai, et al. do not teach a parent node

placing deontic modalities on the behavior of said child nodes. Section 6 of Mihai merely teaches deontic propagation as a planning tool as is apparent from the text of section 8.

Attached is a partial list of papers authored by co-inventor Tom Gray. It is submitted that these papers do not address the deficiencies noted above with respect to the cited prior art. However they are supplied to facilitate the Examiner's requesting of the submission of any additional prior art even though it is believed that the cited prior art is not material to the examination of the claimed invention.

To the extent necessary, Applicants petition for an extension of time under 37 C.F.R. §1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (1375.42981X00) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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Attachments  
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